

## **Automatic translation with pictographs to serve people with IDD**

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Technology can improve life of people with disabilities considerably. For people with intellectual or developmental disabilities (IDD), social exclusion is a problem, as they can not do like their peers, use ICT (email, social media), especially when they are unable to write or read well.

Therefore the European project Able-To-Include (CIF-framework) aims to improve their living conditions in this respect. Its goal is to build an ICT "accessibility layer" that is based on three key technologies: automatic text simplification, text-to-speech, and text-to-pictograph translation (including pictograph-to-text and pictograph-to-pictograph translation).

For the latter, we are currently serving three natural languages (Dutch, English and Spanish), and two pictographic languages (Beta and Sclera), but the tools are in se language-independent. New languages can be added relatively easily, provided that the necessary linguistic tools and resources (such as a part-of-speech tagger, a lemmatizer and lexical-semantic database à la WordNet) are available. The same holds for pictographic languages, the main condition being that there is a facility to express 'verbs'.

We evaluate the system by automatic techniques drawn from the field of machine translation, but we also rely on comments by our users, i.e. people with IDD and their care givers, in order to refine the tool.

Our tool contributes to the e-inclusion of people with intellectual disabilities. Moreover, augmenting written text with pictographic images allows organizations and companies to easily reach out to a large group of people that previously had none or only very limited access to digital written content.